

CLAIMS

1. An adjustable heater for aquaria, comprising a substantially tubular container (2) within which are housed an electrical heating element (3), a switch 5 (6) comprising fixed contacts (7, 8) and moving contacts (9, 10) capable of electrically connecting the said heating element (3) to an outside source (R) of electrical power, a temperature sensor (12) having a bi-metal strip (13) capable of detecting the temperature of the liquid and interacting with the said switch (6) to move it from a closed position to an open position when a predetermined 10 temperature (T) is reached, characterised in that the said moving contacts (9, 10) of the said switch (6) are secured to a free end (13') of the said bi-metal strip (13), the other end (13'') of the said bi-metal strip (13) being electrically insulated so as to prevent current from passing through it.
- 15 2. Heater according to Claim 1, characterised in that the said heating element (3) comprises at least one electrical resistance (4) having a first terminal directly connected to a first conductor (5') of a supply cable from the said source (R) of electrical power.
- 20 3. Heater according to Claim 4, characterised in that the said at least one electrical resistance (4) has a second terminal which can be connected to a second conductor (5'') of the said supply cable (5) through the said switch (6).
- 25 4. Heater according to Claim 3, characterised in that the said moving contacts (9, 10) are mounted on a connecting plate (14) which is in turn anchored to the said free end (13') of the bi-metal strip (13).
- 30 5. Heater according to Claim 3, characterised in that the said fixed contacts (7, 8) of the said switch (6) are connected respectively to the said second supply cable (5'') and the said second terminal of the said at least one resistance (4), the said pair of fixed contacts (7, 8) being in a position facing the said pair of moving contacts (9, 10).

6. Heater according to Claim 5, characterised in that the other end of the said strip (13") is anchored to a supporting frame (15) through a suitable elastic connecting member (16).

5 7. Heater according to Claim 6, characterised in that the said elastic connecting member (16) has a portion (16') substantially transverse to the plane of the extension of the bi-metal strip (13) for connection to the said bi-metal strip (13) and a portion substantially parallel to the plane of extension of the bi-metal strip (13) for anchoring to the said frame (15).

10 8. Heater according to Claim 7, characterised in that it comprises adjustment means (18) acting on the said substantially transverse portion (16') of the said elastic connecting member (16) to vary the stiffness of the bi-metal strip (13) and the position of its free end (13'), and therefore of the said pair of moving contacts (9, 10) with respect to the said pair of fixed contacts (7, 8).

15 9. Heater according to Claim 8, characterised in that the said adjustment means (18) comprise a threaded pin (19) acting on the said transverse portion (16') of the said elastic connecting member (16) and which can be screwed into a seat having a matching thread in a fixed support (20).

20 10. Heater according to Claim 9, characterised in that the said threaded pin (19) is connected to a knob (22) projecting from the said container (2) and provided with a graduated thermometric scale (23) which can be compared with a fixed indicator associated with the said container (2).

25 11. Heater according to Claim 10, characterised in that the said knob (22) is connected to the said threaded pin (19) through a small shaft (24) which passes through the said container (2).

30 12. Heater according to Claim 11, characterised in that it comprises means (27) for calibrating the said adjustment means (18) acting on the said small shaft

(24) to vary the angular position of the said knob (22) with respect to the said threaded pin (19) so as to adjust the temperature (T) set on the said thermometric scale (23) to that effectively measured (T_e) by an external reference thermometer.

5 13. Heater according to Claim 12, characterised in that the said calibration means (27) comprise an adjustment ratchet (28) housed in a seat (29) in the said knob (22) rigidly connected to the said small shaft (24) and selectively connected to the said knob (22) in predetermined angular positions by means of a variable keying connecting member.

10 14. Heater according to Claim 13, characterised in that the said variable keying connecting member comprises a toothed crown (31) which can be engaged by a tooth (32) formed along the upper edge of the said seat (29).

15 15. Heater according to Claim 13, characterised in that magnetic means (33) are proximate to the free end (13') of the said bi-metal strip (13) to keep the said moving and fixed contact means stably in a connecting position.

20 16. Heater according to Claim 1, characterised in that means are provided for visually indicating the position of the said switch, comprising a lamp or luminous diode (34) connected in parallel to the said electrical heating element (3).